

Title (en)  
HANDHELD SENSING APPARATUS

Title (de)  
TRAGBARES DETEKTIONSGERÄT

Title (fr)  
APPAREIL DE DETECTION PORTABLE

Publication  
**EP 1064530 B1 20151028 (EN)**

Application  
**EP 99912743 A 19990319**

Priority

- US 9906094 W 19990319
- US 4523798 A 19980320
- US 14184798 A 19980827
- US 17844398 A 19981023
- US 27187399 A 19990318

Abstract (en)  
[origin: WO9947905A2] A vapor sensing device that is sufficiently small and lightweight to be handheld, and also modular so as to allow the device to be conveniently adapted for use in sensing the presence and concentration of a wide variety of specified vapors. The device provides these benefits using a sensor module that incorporates a sample chamber and a plurality of sensors located on a chip releasably carried within or adjacent to the sample chamber. Optionally, the sensor module can be configured to be releasably plugged into a receptacle formed in the device. Vapors are directed to pass through the sample chamber, whereupon the sensors provide a distinct combination of electrical signals in response to each. The sensors of the sensor module can take the form of chemically sensitive resistors having resistances that vary according to the identity and concentration of an adjacent vapor. These chemically sensitive resistors can each be connected in series with a reference resistor, between a reference voltage and ground, such that an analog signal is established for each chemically sensitive resistor. The resulting analog signals are supplied to an analog-to-digital converter, to produce corresponding digital signals. These digital signals are appropriately analyzed for vapor identification.

IPC 8 full level  
**G01N 1/00** (2006.01); **G01N 31/00** (2006.01); **B01L 3/00** (2006.01); **G01N 27/04** (2006.01); **G01N 27/12** (2006.01); **G01N 27/28** (2006.01); **G01N 27/414** (2006.01); **G01N 29/00** (2006.01); **G01N 33/00** (2006.01); **G06Q 50/00** (2006.01); **G08B 17/10** (2006.01); **H01H 47/32** (2006.01)

CPC (source: EP)  
**G01N 33/0009** (2013.01); **G01N 33/0031** (2013.01); **G01N 33/0022** (2013.01)

Citation (examination)

- FR 2710153 A1 19950324 - ALPHA MOS SA [FR]
- SHURMER H.V.: "Electronic nose. A sensitive and discriminating substitute for a mammalian olfactory system", IEE PROCEEDINGS. PART G. ELECTRONIC CIRCUITS AND SYSTEMS 1990 JUN, vol. 137, no. 3, June 1990 (1990-06-01), pages 197 - 204

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CN108291898A; US11099164B2

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DOCDB simple family (publication)  
**WO 9947905 A2 19990923**; **WO 9947905 A3 19991111**; AU 3105099 A 19991011; AU 756085 B2 20030102; CA 2325137 A1 19990923; CA 2325137 C 20081118; CN 1301342 A 20010627; EP 1064530 A2 20010103; EP 1064530 A4 20041229; EP 1064530 B1 20151028; IL 138587 A0 20011031; IL 138587 A 20040725; JP 2003526768 A 20030909; NZ 507177 A 20030926

DOCDB simple family (application)  
**US 9906094 W 19990319**; AU 3105099 A 19990319; CA 2325137 A 19990319; CN 99806274 A 19990319; EP 99912743 A 19990319; IL 13858799 A 19990319; JP 2000537049 A 19990319; NZ 50717799 A 19990319